United States Department of the Interior

FISH AND WILDLIFE SERVICE
Red Bluff Fish & Wildlife Office
10950 Tyler Road, Red Bluff, California 96080
(530) 527-3043, FAX (530) 529-0292

January 6, 2020

To: Interested Parties

From: Scott Voss, Supervisory Fish Biologist, Red Bluff Fish and Wildlife Office

Subject: Biweekly report (November 19, 2019 - December 2, 2019)

Please find attached preliminary daily estimates of passage, 90% confidence intervals, and fork length ranges of unmarked juvenile salmonids sampled at Red Bluff Diversion Dam for the period November 19, 2019 through December 2, 2019. Race designation was assigned using length-at-date criteria.

This report also contains graphical displays of salmonid passage dating back to 2012 for comparison.

Please note that data contained in these reports is subject to revision as this data is preliminary and undergoing QA/QC procedures.

If you have any questions, please feel free to contact me at (530) 527-3043 ext 243.

Table 1.— Preliminary estimates of passage by brood-year (BY) and run for unmarked juvenile Chinook salmon and steelhead trout captured by rotary-screw traps at Red Bluff Diversion Dam (RK391), Sacramento River, CA, for the dates listed below. Results include estimated passage, peak river discharge volume, water temperature, turbidity, and fork length (mm) range in parentheses. A dash (-) indicates that sampling was not conducted on that date.

Date	Discharge volume (cfs) [1]	Water temperature (°C)	Water turbidity (NTU)	Estimated passage				
				BY19 Winter	BY19 Spring	BY19 Fall[2]	BY19 Late-Fall	BY19 RBT
11/19/2019	5,486	12.0	2.7	6,486 (43 – 84)	280 (30 – 41)	0 (–)	83 (92 – 130)	0 (–)
11/20/2019	5,300	11.3	2.3	7,678 (43 – 84)	772 (30 – 42)	0 (–)	103 (85 – 102)	0 (–)
11/21/2019	5,280	10.8	2.3	10,515 (43 – 83)	422 (31 – 42)	0 (–)	262 (86 – 140)	0 (–)
11/22/2019	5,300	10.8	2.9	8,282 (43 – 83)	465 (30 – 42)	0 (–)	99 (90 – 145)	24 (83)
11/23/2019	5,300	10.7	2.2	8,765 (45 – 86)	466 (29 – 42)	0 (–)	207 (87 – 122)	0 (–)
11/24/2019	5,362	10.6	2.4	6,963 (45 – 86)	761 (31 – 43)	0 (–)	101 (88 – 141)	0 (–)
11/25/2019	5,383	10.3	2.3	9,454 (45 – 87)	872 (30 – 42)	0 (–)	159 (89 – 145)	0 (–)
11/26/2019	5,383	9.3	2.6	6,806 (44 – 88)	943 (31 – 41)	0 (–)	248 (89 – 150)	0 (–)
11/27/2019	5,774	8.6	2.7	10,460 (45 – 85)	1,212 (30 – 44)	0 (–)	462 (94 – 145)	0 (–)
11/28/2019	5,856	9.2	3.4	10,149 (45 – 85)	1,267 (29 – 43)	0 (–)	32 (94)	0 (–)
11/29/2019	5,672	9.2	–	–	–	–	–	–
11/30/2019	5,445	9.1	2.5	5,209 (46 – 89)	1,819 (30 – 45)	0 (–)	88 (104 – 132)	0 (–)
12/1/2019	5,672	9.4	2.3	3,232 (46 – 81)	956 (34 – 43)	690 (30 – 33)	53 (95 – 100)	0 (–)
12/2/2019	6,663	9.8	–	–	–	–	–	–
Biweekly Total [3]				**108,341**	**12,714**	**1,380**	**2,250**	**24**
Biweekly Lower 90% Confidence Interval				81,525	9,001	-799	1,184	-24
Biweekly Upper 90% Confidence Interval				135,158	16,427	3,559	3,317	72
Brood Year Total				**3,620,540**	**12,714**	**1,380**	**141,217**	**21,672**
Brood year Lower 90% Confidence Interval				2,403,354	9,001	-799	18,205	6,600
Brood year Upper 90% Confidence Interval				4,837,726	16,427	3,559	264,228	36,745

[1] Peak daily discharge values do not account for diversions at RBDD and only represent peak flows registered at the Bend Bridge Gauging station (http://cdec2.water.ca.gov/cgi-progs/queryFx?bnd).

[2] Brood year 2019 began on 12/1/2019 according to length-at-date criteria (Greene 1992); brood year 2018 total was estimated 9,781,902.

[3] Biweekly totals may be greater than the sum of the daily estimates presented in this table if sampling was not conducted on each day of the biweekly period. A dash (-) denotes those dates. To estimate daily passage for days that were not sampled, we impute missed sample days with the weekly mean value of days sampled within the week.

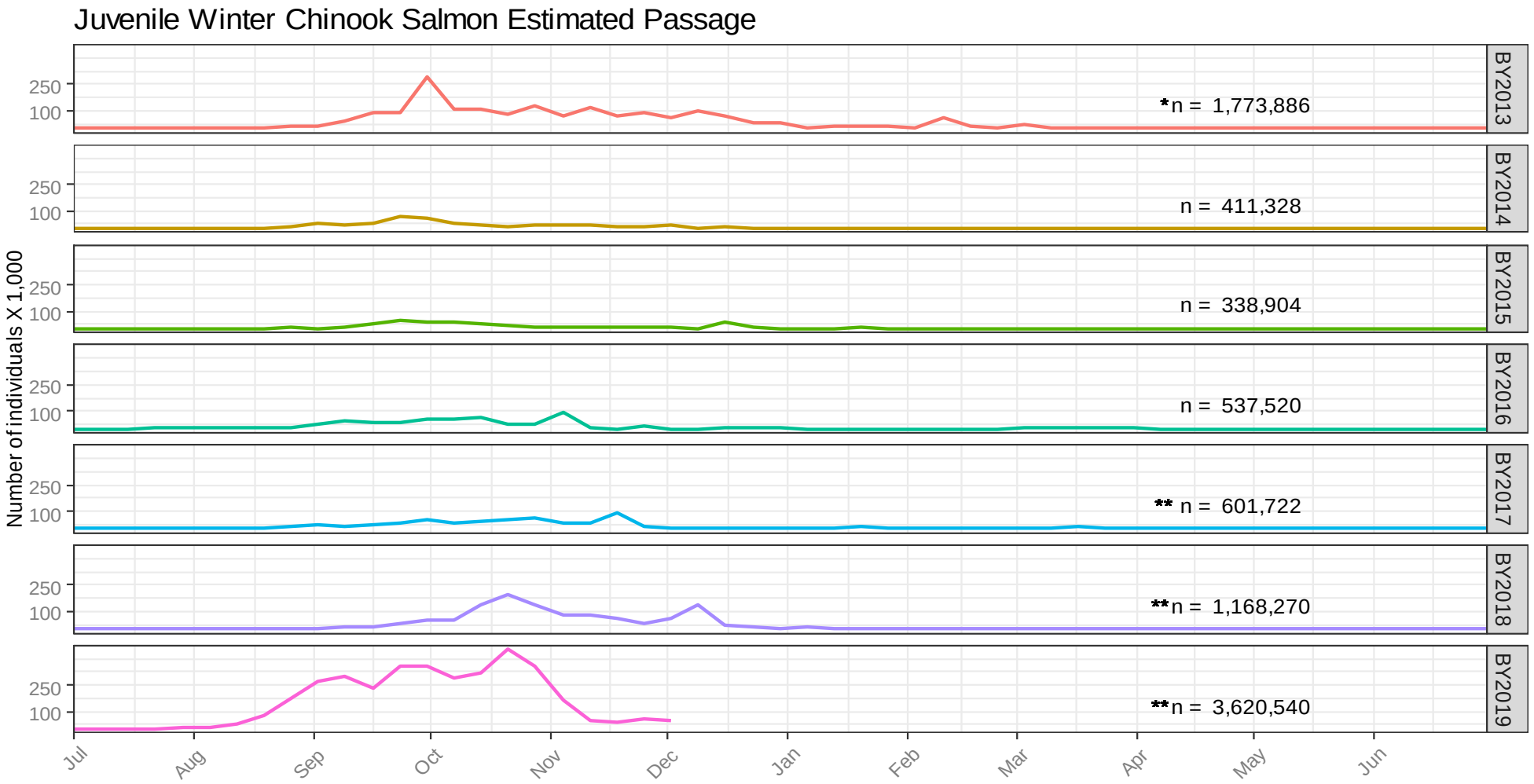

Figure 1. Weekly estimated passage of unmarked juvenile winter Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1, 2013 to present .

*Winter Chinook passage value interpolated using a monthly mean for the period October 1, 2013 - October 17, 2013 due to government shutdown .

**Winter Chinook passage value reflects addition of length-at-date spring Chinook determined to be winter Chinook from genetic analysis during the period of October 16th thru November 18th during brood years 2017 thru 2019. See memos on 2018 & 2019 biweekly report pages for more info .

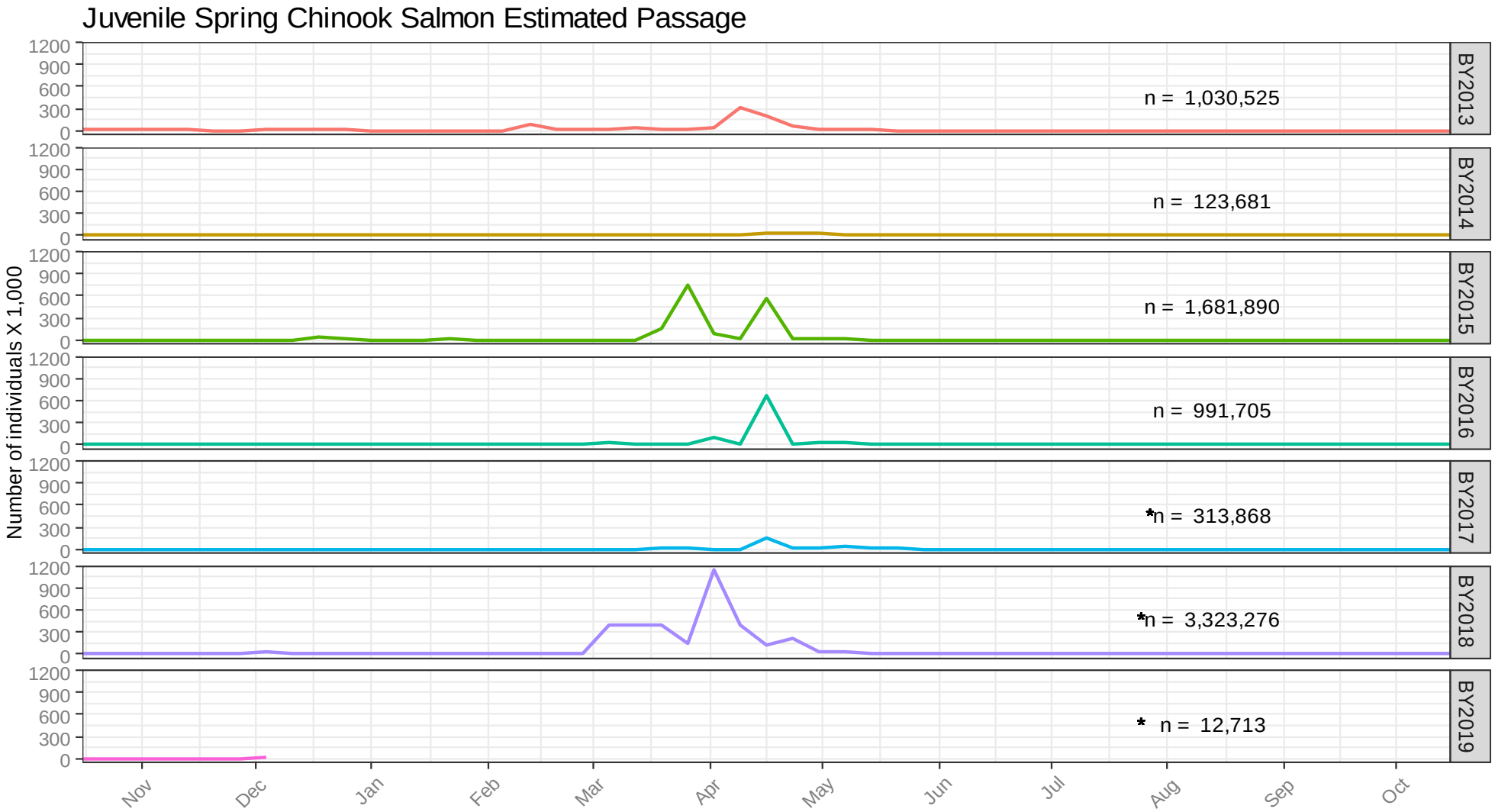

Figure 2. Weekly estimated passage of unmarked juvenile spring Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period October 16, 2013 to present .

*Spring Chinook passage value reflects subtraction of length-at-date spring Chinook determined to be winter Chinook from genetic analysis during the period of October 16th thru November 18th during brood years 2017 thru 2019. See memos on biweekly report website for more info .

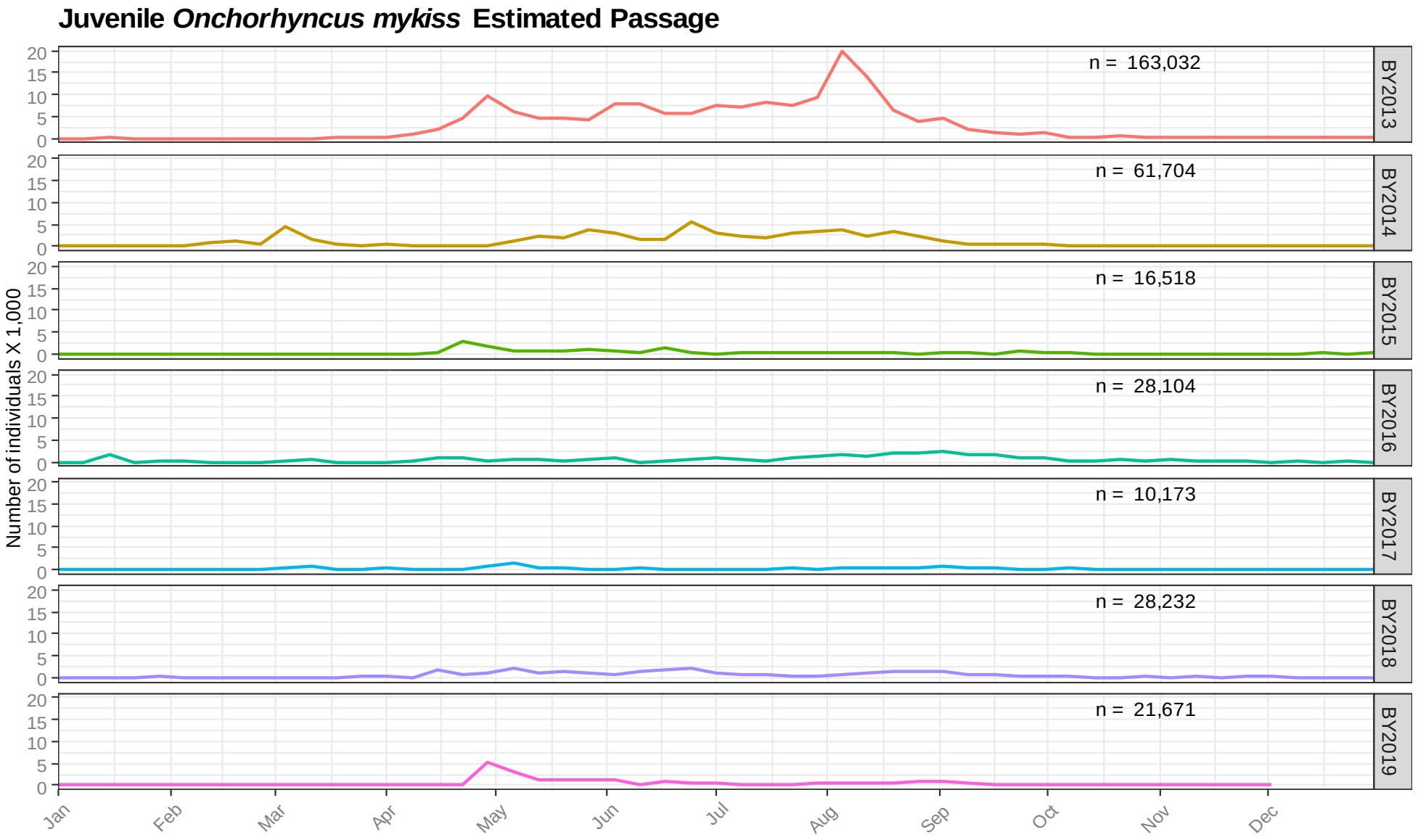

Figure 3. Weekly estimated passage of unmarked juvenile Rainbow/Steelhead trout at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period January 1, 2013 to present .

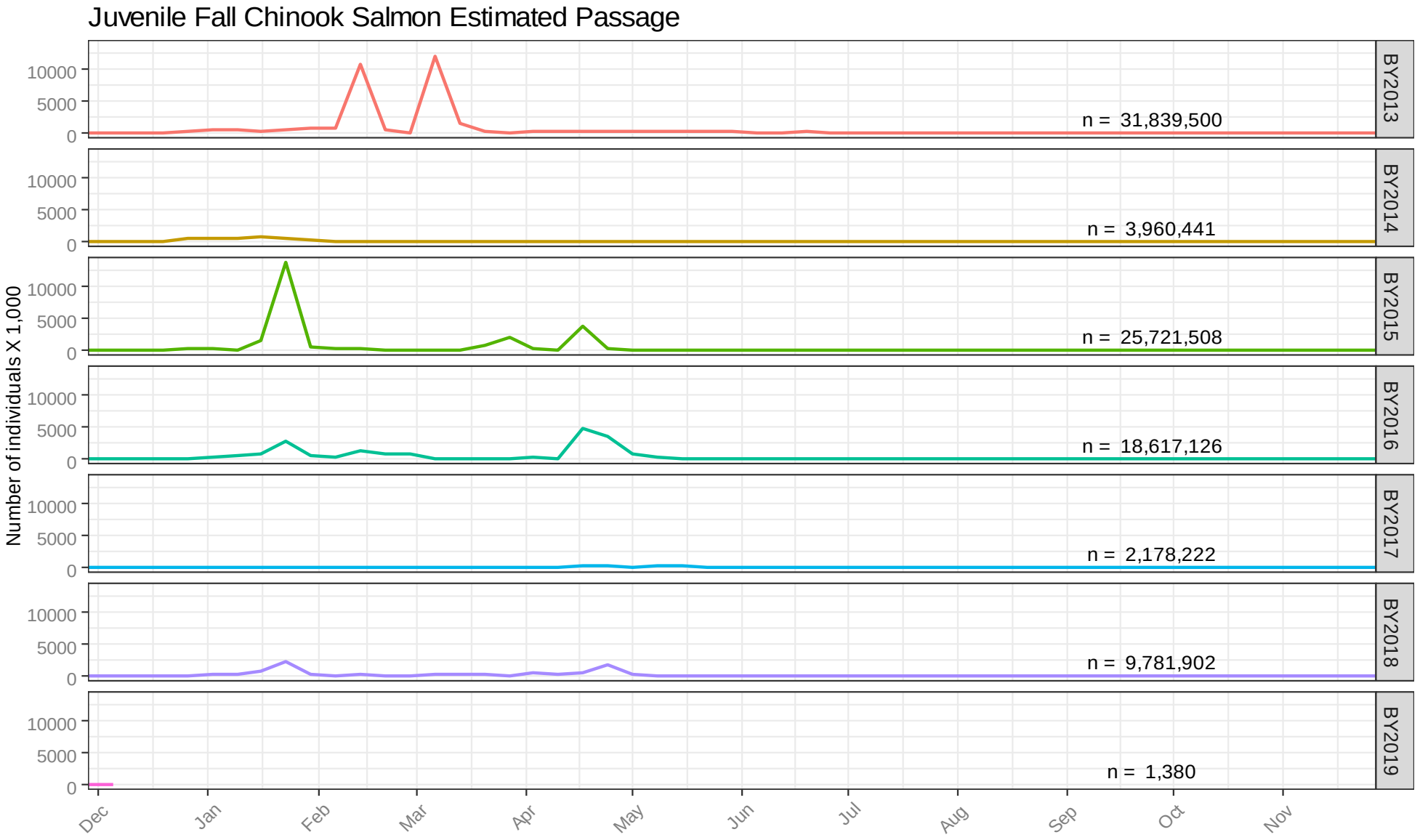

Figure 4. Weekly estimated passage of unmarked juvenile fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1, 2013 to present .

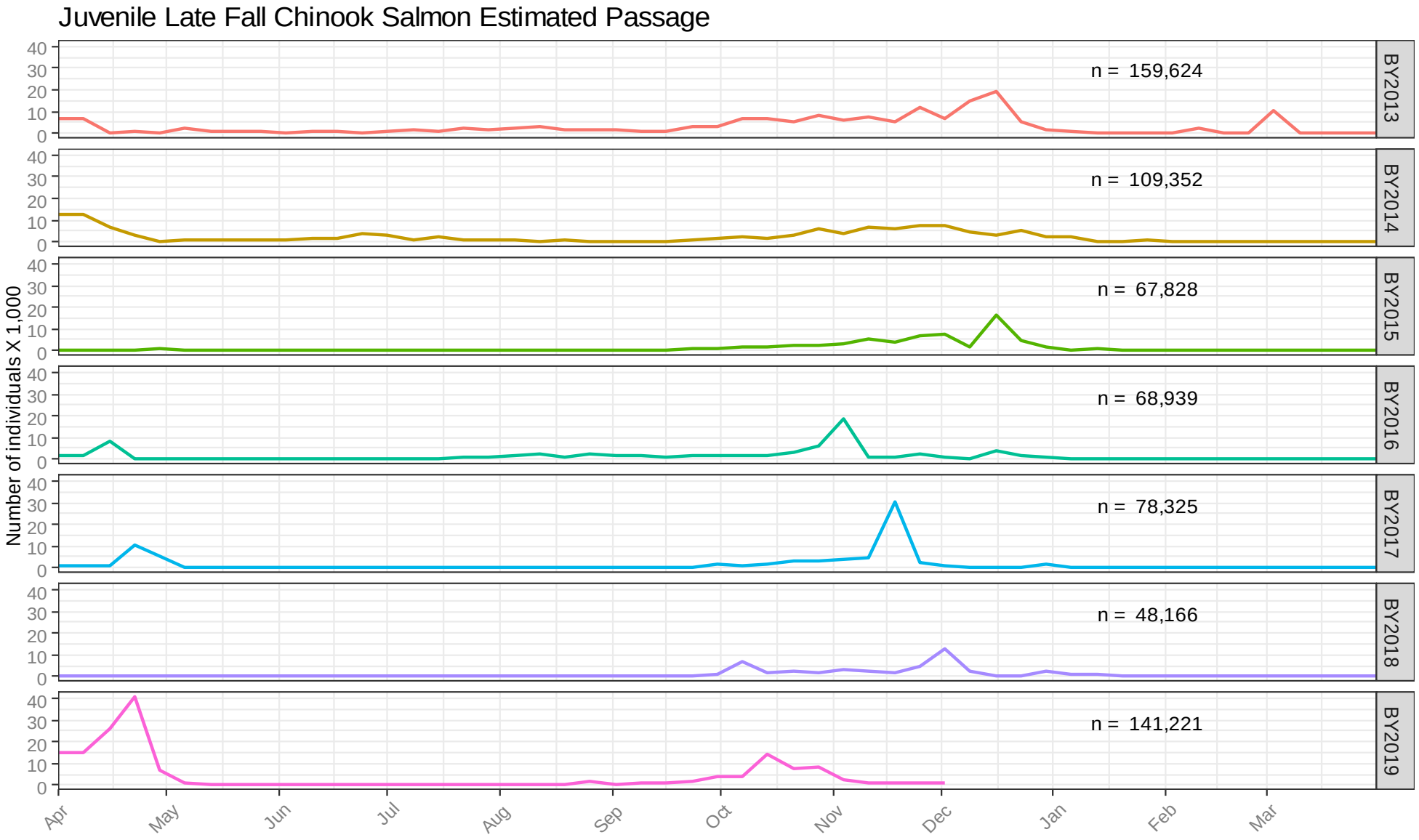

Figure 5. Weekly estimated passage of unmarked juvenile late fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period April 1, 2013 to present .

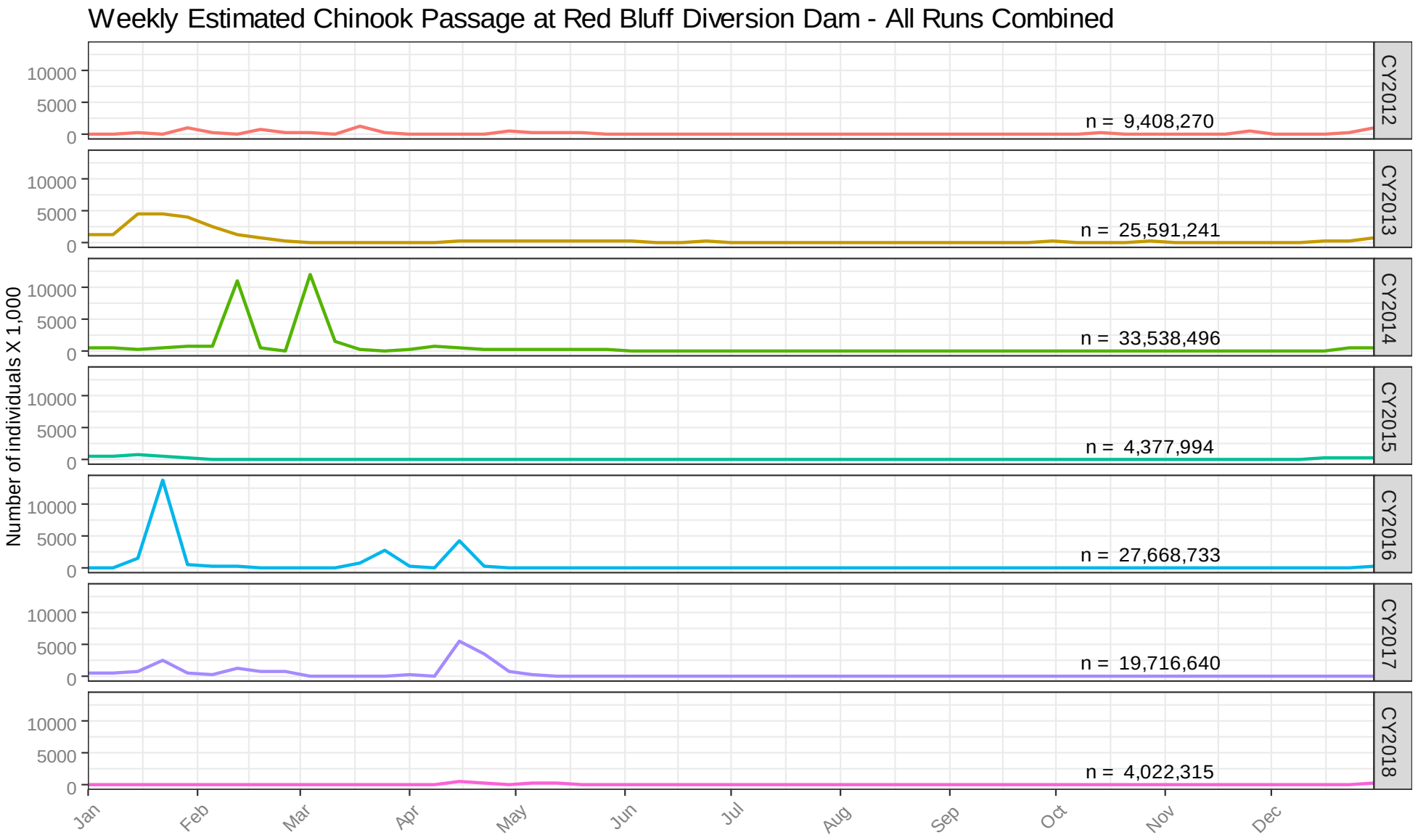

Figure 6. Weekly estimated passage of unmarked juvenile Chinook salmon at Red Bluff Diversion Dam (RK391) by calendar year. Fish were sampled using rotary-screw traps for the period January 1, 2012 to December 31, 2018